REMARKS

Objections

Applicant acknowledges the Examiner's objection to the word, "novel" in both the title and claim 1. Both the title and claim 1 have been amended to remove the word, "novel," rendering this objection moot.

Rejection of Claims 1-17 under 35 U.S.C. 112, first paragraph

The Examiner has rejected claims 1-17 under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention.

The Examiner states, "it is not clear if the deposit meets all of the criteria set forth in 35 CFR 1.801-1.809." Additionally, the Examiner states, "it may be averred that the deposited material has been accepted for deposit under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the purpose of Patent Procedure ... and that all restrictions on the availability to the public of the material so deposited will be irrevocably removed upon the granting of a patent.

Applicant respectfully provides a copy of the International Deposit Form used when the live culture was deposited with Microbial Type Culture Collection (MTCC) at Institute of Microbial Technology, Chandigarh, India. This is a recognized culture deposit center by ATCC and also by the Budapest Treaty for Patent deposits. A copy of the Budapest Treaty Patent Procedure deposit form is attached. The culture will be available once the patent is granted under the terms and conditions of technology transfer of the patent under the rules of CSIR, India. The culture is kept under viable conditions in the culture collection center of the MTCC.

In light of the comments above and attached documentation, it is believed that all rejections for claims 1-17 under 35 U.S.C. 112, first paragraph should be removed.

Rejection of Claim 17 under 35 U.S.C. 101

The Examiner has rejected claim 17 as being directed to non-statutory subject matter. This claim has been amended to denote that the claim is directed to an exopolymeric substance prepared from a particular fungus that is useful for decolorization of colored effluents.

Rejection of Claim 17 under 35 U.S.C. 102

The Examiner has rejected claim 17 under 35 U.S.C. 102 for the reasons of record. Specifically, the Examiner has stated that claim 17 is anticipated by Pointing et al as evidenced by GenBank, basidiomycete sp HKUCC 4062.

The Examiner states, "Claim 17 is drawn to a fungal strain, non-sporulating fungus, grows as white, fluffy mycelium on malt extract medium, and exhibits 99% homology to an unidentified basidiomycete speces AY187277."

The Examiner then states that Pointing et al. discloses, "a fungal strain, a white rot basidiomycetous fungi, basidiomycete sp. HKUCC 4062." The Examiner further states that, "HKUCC 4062 is AY187277."

The Examiner does admit that "Pointing et al. is silent about the phenotype of the fungus, fluffy mycelium and being non-sporulating." The Examiner then states, "because the fungus is the same as the claimed strain therefore, it must inherently have the same characteristics."

Applicant respectfully disagrees with the Examiner's logic that just because an organism may be of the same genus and specie that the organisms are identical. There may be several strains within a single specie that have very different properties even though they belong to the same genus and specie. Additionally, there is no proof in this situation that the two fungal strains belong to the same specie or can perform the same function (decolorization of dyes and effluents).

Additionally, in going back and sequencing both fungal strains again in the D1D2 region, it was found that in just in this analyzed region they are actually 98% homologous and not 99% as previously thought by the inventors. This additional one percent of dissimilarity in this region can confer a variety of differences between two different species. One illustrative example of slight changes in DNA causing great differences in characteristics is antibiotic resistant bacteria that are very similar in sequence to bacteria that are antibiotic sensitive. No one would automatically assume that an antibiotic resistant bacteria was the same genus or specie, let along have the same characteristics, as an antibiotic sensitive one merely based on the two having 98 or 99% homology.

Additionally, claim 17 has now been amended to denote that the claim is directed to an expolymeric substance containing this particular fungus.

In light of the above comments, Applicant respectfully requests withdrawal of the rejection of Claim 17 under 35 U.S.C. 102.

Rejection of Claims 1-16 under 35 U.S.C. 103(a)

The Examiner has rejected claims 1-16 under 35 U.S.C. 103(a) as being unpatentable over Raghukumar et al. (Raghukumar) in view of Galhaup et al. (Galhaup) and Spencer et al. (Spencer).

The Examiner has characterized the present invention and all references in the Office Action itself. The Examiner then further states that, "Raghukumar et al. do not teach freezing the cell-free supernatant obtained in for 12 to 24 hours followed by thawing thereof to obtain a precipitate containing the exopolymeric substance (EPS) and a supernatant, pooling and centrifuging the precipitates to obtain exopolymeric substance precipitating the remaining EPS with methanol, contacting the colored effluents with fungal biomass is carried out at a 30 degree temperature and pH 6.0, contacting the colored effluents with a exopolymeric substance carried out for a period of preferably 24 hours 60 degree C temperature and pH 6.0, separation by centrifugation, and the

medium for growing the fungus is preferably prepared with seawater having 25 parts per thousand salinity." Applicant agrees with the Examiner's conclusions regarding the lack of a variety of the elements of the subject claims in this reference.

The Examiner then states that, "Galhaup et al. teach separating the mycelia by centrifugation, freezing the culture supernatant followed by thawing thereof to precipitate and separate polysaccharides (exopolymeric substance), in order to purify laccase."

The Examiner also states that, "Spencer et al. teach using methanol for precipitating extracellular polysaccharides of fungi." She further notes that "exopolymeric substance (EPS)are exo-polysaccharides."

Lastly, the Examiner states that, "Abadulla et al. teach salts are laccase inhibitors and are applied in combination with dyes to test their inhibitory effects on the immobilized and free enzyme."

As an initial manner, Applicant respectfully points out that it appears Abadulla et al. may have been mistakenly included in the Office Action as it is not utilized as the basis of the rejection and, as such, is not specifically addressed in this response.

Additionally, it appears the Examiner has mischaracterized the teachings of Spencer as it states:

> The methods used vary with the purity of the product desired and whether the major portion of the mannan occurs extracellularly or as part of the cell wall or capsule. In the latter case, the cells are recovered form the culture medium and the mannans extracted by one of several methods. Extraction with hot alkali (2% KOH at 100 ° C for 2 hr) followed by neutralization, removal of debris, and precipitation of polysaccharide with methanol is probably the most commonly used method.

Applicant respectfully points out that the precipitation of extracellular polysaccharides per the method of Spencer utilizes much more than mere extraction with ethanol, as evidenced above in the longer quote.

Applicant respectfully asserts that it would not, in any way, be obvious to modify the teaching of Raghukumar with either Galhaup or Spencer to produce an exopolymeric substance for use in a process to decolorize effluents as neither Galhaup or Spencer are related in any way to the creation of exolymeric substances, let alone exopolymeric substances to be utilized in direct contact with the effluent itself to effect decolorization of it. Nor are either of the references related to the use of an exopolymeric substance in a salt solution (25 parts per thousand). In fact, both references actually teach away from the present invention as they are both focused merely on ways of isolating particular components of the fungal or mycelia culture and not related in any way to the use of those isolated compounds in a solution immediately after isolation. Galhaup is directed to the purification of one particular component in the solution, specifically laccase, and the freezing and thawing of the culture media in the method of Galhaup is utilized as a way to purify out this one particular compound. Spencer is a summary article directed to a variety of methods to isolate and characterize yeast mannan. As noted above, one of the methods of Spencer to isolate mannan does include a methanol extraction step but also includes many other steps along with methanol extraction.

In light of the distinctions noted above, there would be no reason for the skilled person in the art to consider modifying Raghukumar by the methods of either Galhaup or Spencer as the combination would not produce a method to use an exopolymeric substance in direct contact with a colored

effluent to effect decolorization in a salt solution. Therefore, it would not have been simple to modify the method of Raghukumar by the methods of Galhaup or Spencer to arrive at the present invention. Furthermore, Applicant respectfully asserts that the combination of references actually teach away from the present invention as they do not produce the methods of the present invention even in combination.

Concluding Remarks

In view of the foregoing remarks, Applicant respectfully requests reconsideration and examination as to the merits of the application. If the Examiner notes any further matters which would be expedited by a telephonic interview, she is requested to contact Dr. Jennifer M. McCallum at the telephone number listed below.

Respectfully Submitted,

March 30, 2010
Date

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MTCC

BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE

INTERNATIONAL FORM

To

Dr. Chandralata Raghukumar
Scientist
Biological Oceanography Division
National Institute of Oceanography
Dona Paula, GOA- 403 004
INDIA

NAME AND ADDRESS OF THE PARTY TO WHOM THE VIABILITY STATEMENT IS ISSUED

VIABILITY STATEMENT
issued pursuant to Rule 10.2 by the
INTERNATIONAL DEPOSITARY AUTHORITY
identified on the following page

I. DEPOSITOR	II. IDENTIFICATION OF THE MICROORGANISM
Name: Dr. Chandralata Raghukumar Address: Scientist Biological Oceanography Division National Institute of Oceanography Dona Paula, GOA- 403 004 INDIA	Accession number given by the INTERNATIONAL DEPOSITARY AUTHORITY MTCC 5159 Date of the deposit or of the transfer: 09-07-2004

III. VIABILITY STATEMENT

The viability of the microorganism identified under II above was tested

on 08-07-2004 [3] on that date, the said microorganism was

(X) viable

( ) no longer viable

[1] Indicate the date of the original deposit or, where the new deposit or a transfer has been made, the most recent relevant date (date of the new deposit or date of the transfer).

[2] In the cases referred to in Rule 10.2(a)(ii) and (iii), refer to the most recent viability test.

[3] Mark with a cross the applicable box

[4] Form MTCC BP/9 (first page)

MTCC

BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE

INTERNATIONAL FORM

To
Dr. Chandralata Raghukumar
Scientist
Biological Oceanography Division
National Institute of Oceanography
Dona Paula, GOA- 403 004

NAME AND ADDRESS OF THE DEPOSITOR

RECEIPT IN THE CASE OF AN ORIGINAL DEPOSIT
issued pursuant to Rule 7.1 by the
INTERNATIONAL DEPOSITARY AUTHORITY
identified at the bottom of this page

I. IDENTIFICATION OF THE MICROORGANISM

Identification reference given by the DEPOSITOR: **Unidentified white-rot fungus NIOCC #2a**

Accession number given by the INTERNATIONAL DEPOSITARY AUTHORITY: **MTCC 5159**

II. SCIENTIFIC DESCRIPTION AND/OR PROPOSED TAXONOMIC DESIGNATION

The microorganism identified under I above was accompanied by :

( ) a scientific description

( ) a proposed taxonomic designation

(Mark with a cross where applicable)

III. RECEIPT AND ACCEPTANCE

This International Depositary Authority accepts the microorganism identified under I above,

which was received by it on 09. 07. 2004 (date of the original deposit)[1]

IV. RECEIPT OF REQUEST FOR CONVERSION

The microorganism identified under I above was received by this International Depositary Authority on _____ (date of the original deposit) and a request to convert the original deposit under the Budapest Treaty was received by it on _____ (date of receipt of request for conversion)

V. INTERNATIONAL DEPOSITARY AUTHORITY

Name: Dr. G.S.PRASAD

Address:
Microbial Type Culture Collection & Gene Bank
Institute of Microbial Technology
Sector 39-A, Chandigarh - 160 036
India

Signature(s) of person(s) having the power to represent the International Depositary Authority or of authorized official(s):

Date: 09.07.2004

[1] Where Rule 6.4(d) applies, such date is the date on which the status of International Depositary Authority was acquired

Form MTCC BP/4 (sole page)